

Material Preparation

MATERIALS

- empty cardboard box or storage container
- two 7" beach balls
- two rubber bands
- two 6" x 6" pieces of bubble wrap
- two balloons
- two clear plastic grocery bags
- two clear, plastic, quart size, resealable sandwich bag with a zipper lock
- one gallon of whole milk (juice or non-toxic bubble solution may be substituted)
- food coloring
- plastic tablecloth
- paper towels
- sidewalk chalk
- ECHOS book: *Bye-Bye Bubbles*

For each child:

- small clean bowl (about 6" - 8")
- drinking straw
- *Ask Me About Air* sticker

PREPARE IN ADVANCE

- Prepare a set of inflated/deflated objects:
 - Inflate one beach ball and one balloon.
 - Inflate one plastic resealable bag and one produce bag by capturing air in them and sealing the opening with a rubber band or bag tie.
- Place the following objects in a large container or box:
 - Set of *inflated objects*: balloon, plastic resealable bag, beach ball, grocery bag, and piece of un-popped bubble wrap.
 - Set of *deflated objects*: balloon, plastic resealable bag, beach ball, grocery bag, and piece of popped bubble wrap.
- Fill each small clean bowl with about 1" of milk, then stir in a drop of food coloring.



inflated objects



deflated objects

SET UP THE LESSON AREA

- Use chalk to draw two large circles on the floor for sorting.
- Cover the table with a tablecloth.
- Place the bowls of milk and drinking straws to the side, out of children's reach.
- Place the container of objects under the table or next to the teacher's chair.
- Gather the ECHOS book and place it near the ECHOS lesson area.



OBJECTIVE

Children will understand that air takes up space.

EXCITE

1. Gather the children in the ECHOS lesson area. **Something very exciting is about to happen. Keep your eyes and ears open.**
2. Hold up a deflated balloon. Put it to your mouth and begin filling it with air. Exaggerate the motions. Pinch the open end of the balloon together tightly then hold up the balloon. **Count with me: 1, 2, 3.** On the count of 3, let go of the balloon so that it rushes around the room as the air is released.



INTRODUCE

1. Retrieve the deflated balloon. Hold it up in your hand. **Is this balloon empty or full now? Yes, it's empty because it has no air in it. When it has no air, it is *deflated*.** Ask the children to repeat the word *deflated*.
2. **When I blew up the balloon, was it *inflated*? Yes, when the balloon is full of air, it is inflated. Air took up space inside this balloon.** Ask the children to repeat the word *inflated*.
3. **Let's read this storybook about air.** Hold up the ECHOS book: *Bye-Bye Bubbles* to show the cover. **The title of this book is *Bye-Bye Bubbles*.** Read the story to the children.
4. **Let's explore some more, just like the children did in the storybook. I have some objects in a box under the table. We are going to sort them in a special way. I have made two circles on the floor to help us.**



5. **How should we sort the objects?** Children may suggest big/small, colorful/plain, etc. Suggest that the children sort by whether they are *inflated* or *deflated*. **Let's place objects that are inflated with air in this circle.** Point to one of the two chalk circles on the floor. Next, point to the other circle. **In this other circle, we can place objects that are deflated, with no air.**
6. Hold up one object at a time from the container and say:
- **Look at this object carefully. What do you notice about it?**
 - **Is it deflated or inflated?**
 - **Which circle should you put it in? Why?**
7. Choose one child at a time to place an object in the right circle; guide as needed. After each child has had at least one turn, and all the objects are sorted correctly, review the objects and discuss the differences between them.
8. **You were all great sorters today! Let's look at the objects in both circles. Which circle has objects that are inflated?** Listen to the children's responses. Point to the circle. **Yes, the objects are inflated because they are filled with air.**
9. Point to the other circle. **This circle has objects that are deflated. The objects are deflated because they have no air.**



EXPLORE

1. **You did a great job sorting the inflated and deflated objects into two groups. Now let's explore something we all love to inflate, bubbles!** Guide the children to sit at a table. Give each child one plastic drinking straw. **Before we investigate bubbles, let's practice using our straws. Hold your straw in one hand and place one end in your mouth. Place your other hand out in front of your face.** Model for the children.
2. Model for the children how to blow air through the straw directly into the palm of their hand. **Blow through the straw and out toward your hand. Ready? Go! Can you feel air on your hand? Listen to the children's responses. Air is all around us. Air also comes in and out of our body through our mouth and nose. When we blow through our mouth, air comes out.**
3. Give each child a small bowl of fresh, cold milk. **What do you think will happen if you blow air into a bowl of milk? Listen to the children's responses. Place one end of the straw in the milk, and the other end of the straw in your mouth. Now blow the air into the straw. Observe what happens.**
4. Extend the children's learning by guiding them to explore what will happen if they blow air differently into the milk. For example, they can try blowing air in big or small puffs, at different angles and at different depths in the milk.




INTERACT

Interact to accommodate children's individual needs and strengths. Use these suggested strategies as needed:

- During the **Excite**, some children may be fearful of the balloon popping or making a loud noise. Prior to letting go of the balloon, reassure the children that the balloon will not make a loud sound.
- To reinforce the vocabulary words *inflate* and *deflate*, discuss additional examples of each term: basketball, bicycle tire, etc.
- Demonstrate how to use an air pump to blow up balloons of different sizes.
- At first, some children may have a difficult time blowing air through a straw. Have the children practice blowing air through the straw and feeling it on their hand.

OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?**
Listen to the children's responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from everyone.
 - **What made the balloon to fly around the room?**
 - **How did we sort the objects?**
 - **What objects can be inflated?**
 - **How can we feel air?**
2. Give each child an *Ask Me About Air* sticker. 

Remind the children to tell their family something they have learned about air.
3. After you have completed *Lesson #2: Air Takes Up Space* with all the children in your classroom, add the ECHOS material suggested below to your science area to encourage exploration.

VOCABULARY

- deflated
- inflated



ECHOS Book: *Bye-Bye Bubbles*